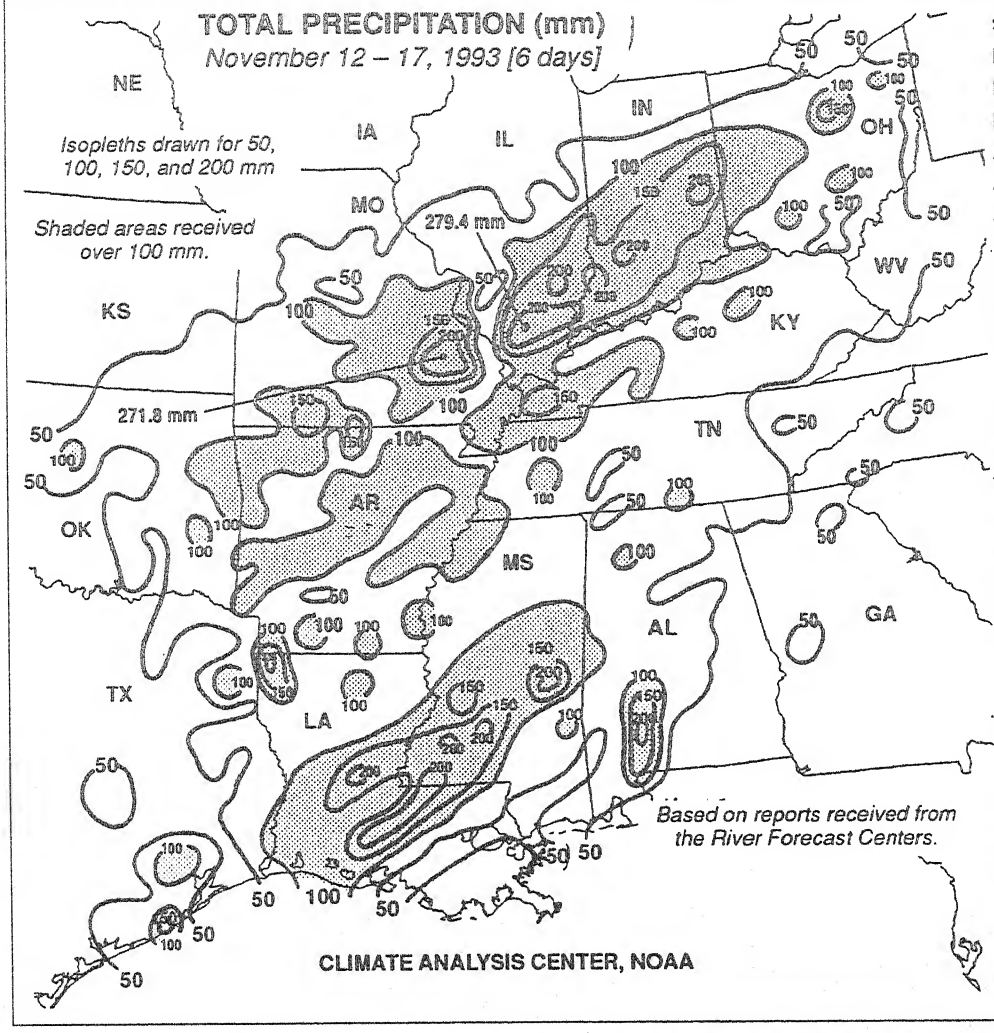
CLIMATE ANALYSIS CENTER

WEEKLY CLIMATE BULLETIN

No. 93/47 Washington, DC November 24, 1993



SLOWLY–MOVING STORM SYSTEMS INUNDATE PORTIONS OF THE LOWER MIDWEST AND MIDDLE AND LOWER MISSISSIPPI VALLEY. *Southern and eastern Missouri, central and southern Illinois, and southwestern Indiana bore the brunt of these storms, which dropped up to 280 mm of rain during the six–day period. According to press reports, daily totals exceeding 150 mm caused rapid rises along the Big Piney, Castor, Gasconade, and St. Francis Rivers in Missouri, on several small rivers and creeks in southern Illinois, and along the Wabash and White Rivers in Indiana, forcing more than 700 individuals from their homes and claiming at least five lives. Water stood as much as six feet deep in parts of Elvins, MO while floods contaminated drinking water for hundreds of individuals in Waverly, IN. Farther south, rainfall totals exceeding 200 mm were reported through portions of central and southeastern Louisiana and southern Alabama while approximately half a dozen tornadoes touched down across eastern Texas and Arkansas. The twisters downed trees and power lines, tore off several roofs, and blew out store fronts in a few small towns in Arkansas while another tornado touched down in downtown Houston, TX, shattering numerous office windows, shearing off several rooftops, and injuring over two dozen individuals, according to press reports.*

UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE–NATIONAL METEOROLOGICAL CENTER
CLIMATE ANALYSIS CENTER

WEEKLY CLIMATE BULLETIN

This Bulletin is issued weekly by the Climate Analysis Center and is designed to indicate, in a brief concise format, current surface climatic conditions in the United States and around the world. The Bulletin contains:

- *Highlights of major climatic events and anomalies.*
- *U.S. climatic conditions for the previous week.*
- *U.S. apparent temperatures (summer) or wind chill (winter).*
- *Global two–week temperature anomalies.*
- *Global four–week precipitation anomalies.*
- *Global monthly temperature and precipitation anomalies.*
- *Global three–month precipitation anomalies (once a month).*
- *Global twelve–month precipitation anomalies (every three months).*
- *Global three–month temperature anomalies for winter and summer seasons.*
- *Special climate summaries, explanations, etc. (as appropriate).*

Most analyses contained in this Bulletin are based on preliminary, unchecked data received at the Climate Analysis Center via the Global Telecommunications System. Similar analyses based on final, checked data are likely to differ to some extent from those presented here.

STAFF

Editor	Tom Heddinghaus
Associate Editor	Richard Tinker
Contributors	Joe Harrison
	Paul Sabol
	David C. Stutzer
Graphics	Robert H. Churchill
	Alan Herman

*To receive copies of the **Bulletin** or to change mailing address, write to:*

Climate Analysis Center, W/NMC53

Attn: WEEKLY CLIMATE BULLETIN

NOAA, National Weather Service

Washington, DC 20233

For CHANGE OF ADDRESS, please include a copy of your old mailing label.

Phone: (301) 763–4670

WEEKLY CLIMATE BULLETIN REQUESTS

☐ **Please ADD my address to your mailing list.**

☐ **Please CHANGE my address on your mailing list.**

☐ **Please DROP my address from your mailing list.**

Name _____

Organization _____

Address _____

City _____ State _____ Zip _____

GLOBAL CLIMATE HIGHLIGHTS

MAJOR CLIMATIC EVENTS AND ANOMALIES AS OF NOVEMBER 20, 1993

1. Alaska:

TEMPERATURES RETURN TO NORMAL.

Near normal temperatures prevailed as more seasonable conditions spread across the state [WARM – Ended at 3 weeks].

2. West–Central North America:

STILL VERY DRY.

Although as much as 90 mm of precipitation fell on parts of Vancouver Island, most of the region received less than 20 mm. Six–week moisture deficits climbed to 330 mm in parts of British Columbia and reached 250 mm elsewhere [DRY – 13 weeks].

3. Central United States:

HEAVY RAINS ENGENDER FLOODING.

Almost 300 mm of precipitation drenched parts of Missouri, Illinois, and Indiana, forcing rivers and streams out of their banks. According to press reports, a few lives were lost and more than 700 people were forced from their homes (see front cover) [Episodic Events].

4. Northern and Western Europe:

UNUSUALLY DRY IN SCANDINAVIA; EARLY–SEASON SNOW FARTHER SOUTH.

Less than 30 mm of precipitation was observed across most of Scandinavia, as six–week moisture shortages approached 240 mm in Norway [DRY – 5 weeks]. Wintry weather prevailed across most of Europe. Early–season snows dusted both Paris and London, with the latter location reporting its first November snowfall since 1969 [Episodic Events].

5. Southwestern Europe and Northwestern Africa:

DRIER WEATHER PREVAILS.

Although a few locations in Morocco received up to 90 mm of rain, most of the region measured little or no precipitation. Six–week moisture surpluses were near 360 mm on Corsica and dropped to 200 mm on the Iberian Peninsula [WET – Ending at 11 weeks].

6. Greece and Turkey:

HEAVY RAINS INUNDATE REGION.

Several months of unusually dry weather came to an abrupt end as heavy rains (up to 130 mm) caused flooding through much of Greece (see page 2) [Episodic Events]. Abundant rains (50 to 70 mm) also brought relief to much of Turkey [DRY – Ended at 11 weeks].

7. Eastern Europe and Western Asia:

COLD WEATHER COVERS EXTENSIVE AREAS.

A large high pressure system centered near St. Petersburg brought Arctic air from the Atlantic Ocean eastward into central Siberia and southward to northern India. Weekly departures reached –11°C in eastern Europe and plummeted to –17°C in parts of the former Soviet Union [COLD – 5 weeks]. Strong storms continued to batter the Black and Caspian Seas, where torrential rains and flooding in Iran destroyed thousands of homes and washed away farms, power lines, and bridges [Episodic Events].

8. Taiwan:

STILL ABNORMALLY DRY.

Although up to 105 mm of rain fell on isolated locations, most of the island reported only 20 to 40 mm, and six–week moisture shortages remained near 280 mm [DRY – 23 weeks].

9. Indonesia and the Philippines:

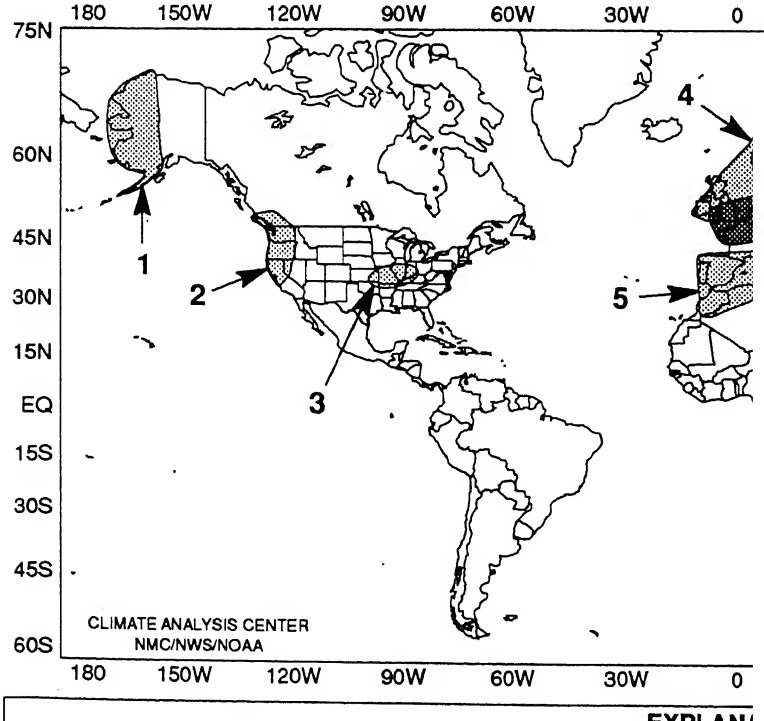
TORRENTIAL RAINS DELUGE SUMATRA; TROPICAL STORM KYLE RAKES PHILIPPINES.

Heavy thunderstorms dumped more than 150 mm of rain on Sumatra, causing flooding and landslides that claimed several lives and isolated more than 50,000 individuals, according to press reports. Meanwhile, Tropical Storm Kyle lashed the central Philippines with 85 kph winds and up to 250 mm of rain. According to press reports, neck–deep flood waters forced the evacuation of hundreds of people from a village on the island of Cebu [Episodic Events].

10. Southeastern Australia:

WET WEATHER EASES SLIGHTLY

Less than 10 mm of rain fell on western New South Wales, western Victoria, and eastern South Australia. To the east, however, 20 to 50 mm dampened the eastern halves of Victoria and New South Wales as six–week moisture surpluses remained near 50 mm [Ending at 11 weeks].

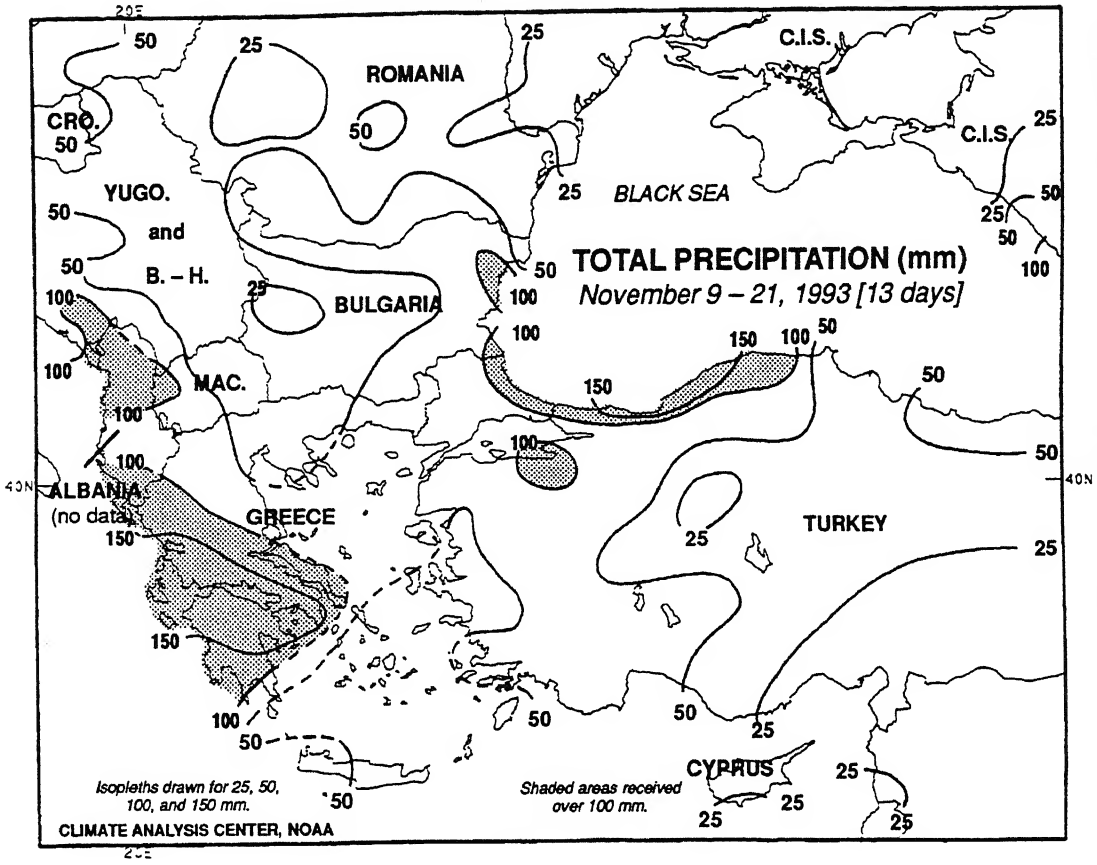


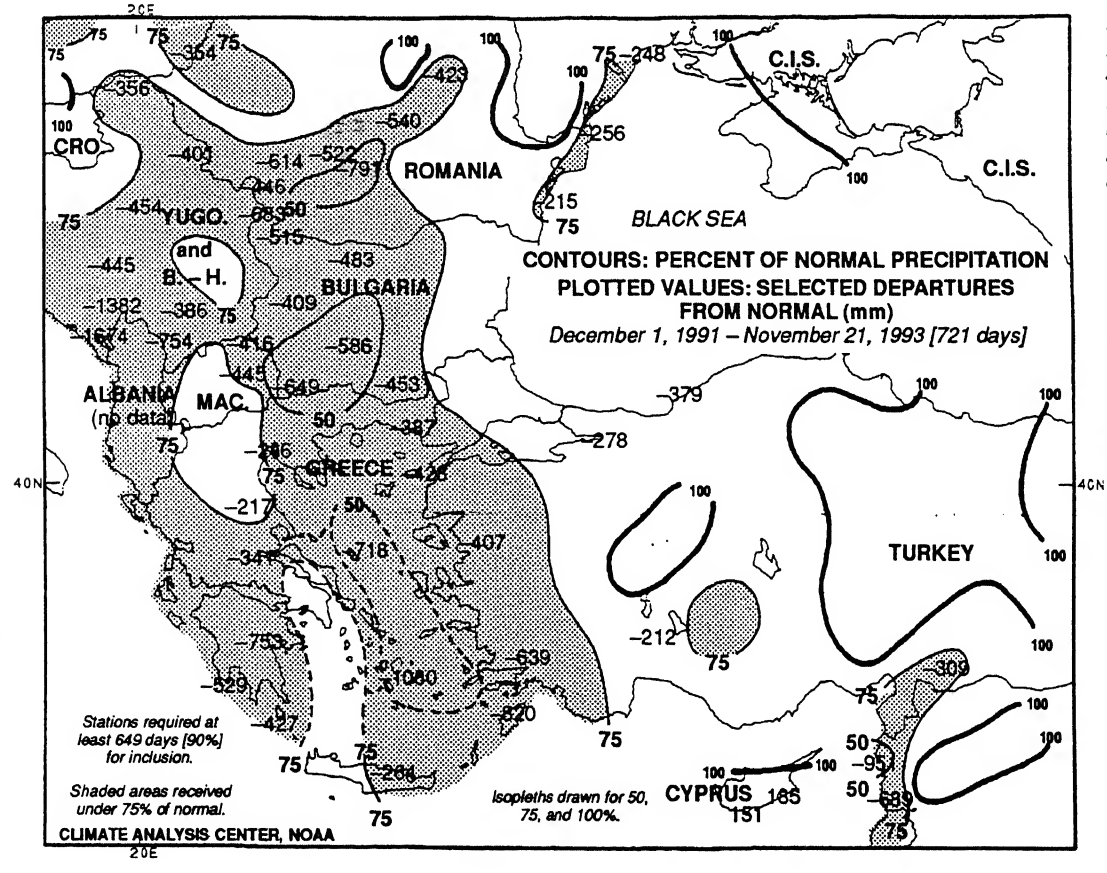
EXPLAN

TEXT: Approximate duration of anomalies is in brackets. Precipitation

MAP: Approximate locations of major anomalies and episodic events a temperature anomalies, four week precipitation anomalies, long-

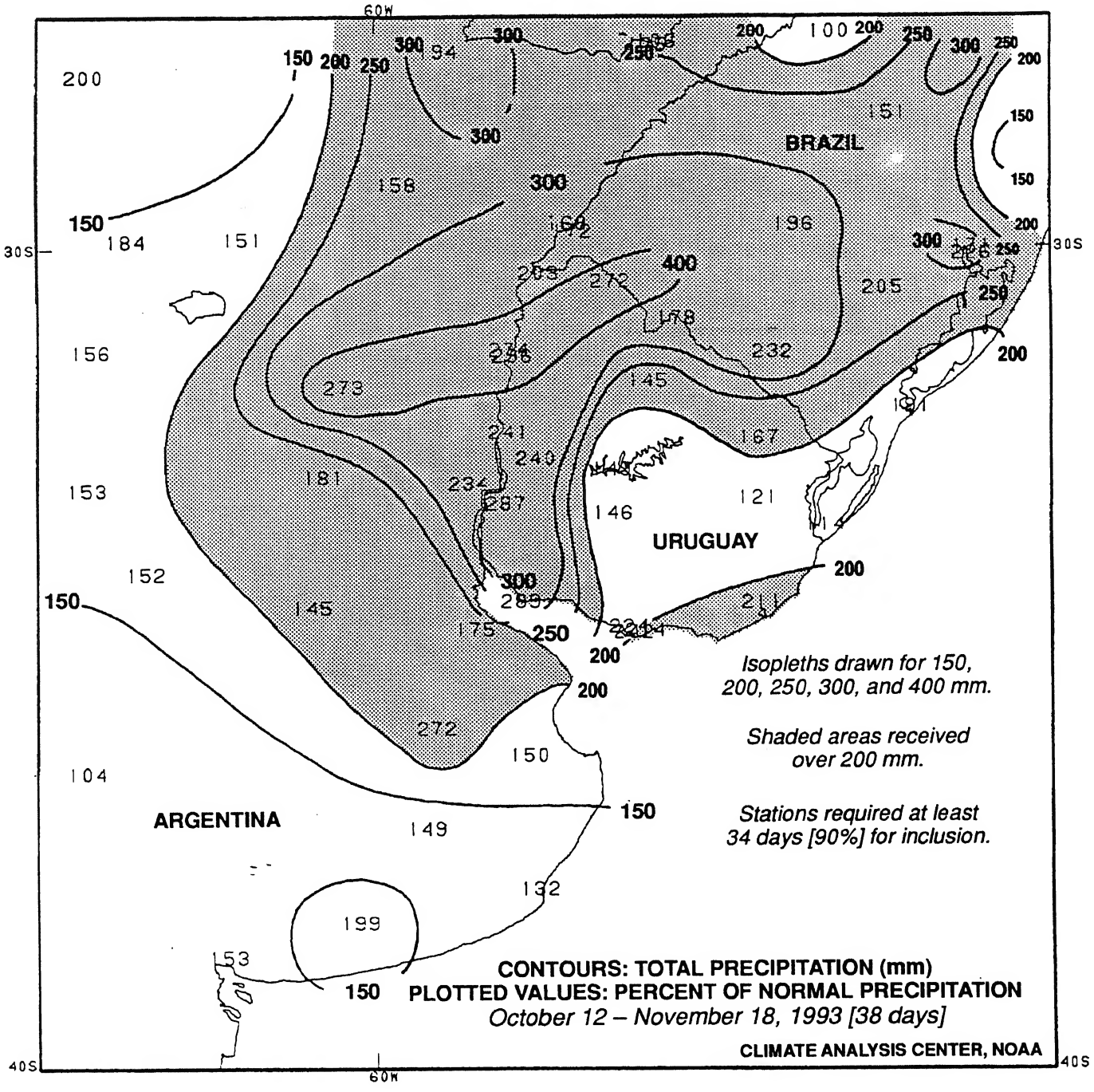
GLOBAL CLIMATE HIGHLIGHTS FEATURE





TWO WEEKS OF STORMY WEATHER (top left) MITIGATE THE AFFECTS OF NEARLY TWO YEARS OF PERSISTENTLY BELOW NORMAL PRECIPITATION (bottom left). *Much of the Balkans, Greece, and western Turkey have observed consistently subnormal precipitation since late 1991, with the most recent summer and early autumn bringing particularly dry conditions to much of the region, especially Greece. Athens, according to press reports, endured its first precipitation-free October in 50 years, and most of the central and western Balkans, Greece, and western Turkey received less than 75% of normal precipitation since December 1991. Southwestern Bulgaria and central Greece were particularly parched as only 33% – 50% of normal amounts were reported for the 721-day period. These shortfalls correlate to accumulated deficits exceeding 400 mm throughout the aforementioned region, with shortages topping 1000 mm in parts of central Greece and across Montenegro, where normals are higher. Press reports indicate that the prolonged drought has affected the Athenian water supply, forcing the government to mandate price increases of over 400% and usage decreases of at least 30% during the past year. Since early November, however, stormy weather has dumped large amounts of precipitation through the region, particularly across southern and western Greece and the western Balkans, where 100 – 200 mm fell. The rains benefitted the declining Greek water supply, but torrential downpours in short periods of time caused widespread flooding in Athens, where a state of emergency was declared. Over 1,000 homes were invaded by floodwaters in the Greek capital, according to press reports. Farther north, heavy snows isolated more than 100 villages across northern Greece and disrupted road, rail, and air traffic across Romania. The storms also disrupted aid convoys attempting to distribute vital materials to refugees in Bosnia-Hercegovina. Authorities also suspended sailing in the Greek islands, and closed Bulgaria's largest Black Sea port (Varna) because of snow and high winds, according to press reports.*

GLOBAL CLIMATE HIGHLIGHTS FEATURE



UNUSUALLY HEAVY EARLY–SEASON RAINS REPORTED ACROSS NORTHEASTERN ARGENTINA, URUGUAY, AND EXTREME SOUTHERN BRAZIL. *More than 200 mm of rain drenched a large section of east–central South America since mid–October, with totals exceeding 400 mm reported across northern Uruguay and adjacent sections of Brazil and Argentina. Above–normal amounts exceeding 100 mm were observed throughout the region, with 200% – 295% of normal reported in extreme northeastern Argentina, across northern, western, and southeastern Uruguay, and through extreme southern Brazil. Accumulated surpluses of 175 – 280 mm were measured at several locations, primarily along the Argentina/Uruguay border.*

UNITED STATES WEEKLY CLIMATE HIGHLIGHTS

FOR THE WEEK OF NOVEMBER 14 – 20, 1993

A strong frontal system pushed across the High Plains to the East Coast during the first half of the week, generating storms that dumped four to nine inches of rain on portions of the middle Mississippi and Ohio Valleys and central Gulf Coast, and spawning severe weather from the southeastern Plains and lower Mississippi Valley to the central Appalachians. In central and southwestern Indiana, high waters from heavy rains forced about 700 people from their homes along the Wabash and White Rivers. In southern Illinois, bloated rivers engulfed roads and partially submerged houses. As many as 100 homes may have been damaged, according to press reports. In central Missouri, flooding along the Gasconade and Big Piney Rivers forced over 100 people from their homes. Many rivers and small streams were also out of their banks in Ohio and southwestern and south–central Missouri while local flooding was reported across southeastern Louisiana. A tornado ripped through downtown Houston on Tuesday, downing trees and power lines, shattering windows in several buildings, and injuring more than a dozen people. On Wednesday, another twister touched down near Harrodsburg, KY, wrecking a trailer park while damage from straight–line thunderstorm wind gusts was reported in Ripley, AL, Brodhead, KY, and Huntington, WV. Dry weather continued to prevail through most of the Far West as winds gusting to 53 mph on Monday fanned several more brushfires in southern California, including the Malibu area. All the blazes, however, were quickly extinguished, according to press reports.

At the beginning of the week, a massive frontal system brought widespread precipitation to a large portion of the nation from the northern and central Rockies and southeastern Plains eastward to the Appalachians and lower Mississippi Valley. Heavy rain deluged parts of the middle and lower Mississippi, Tennessee, and Ohio Valleys while snow blanketed much of the area from the northern Rockies to the upper Great Lakes. Subtropical air flowed northward ahead of the system, establishing over two and a half dozen new high temperature records from Louisiana and Florida to southern New England. Farther west, rain (snow in the higher elevations) covered the Southwest, where locally heavy rain caused flash floods in central Arizona. By Tuesday evening, the

'klv swung southward,
Arkansas, while a
g the trailing edge,
iiddle and lower
ıued to generate
m as 40 new daily
: states on Monday.
astward across the
ducing high winds
:tled over the Great
'es dipped into the

:ked back to the
ɜrate to heavy rain

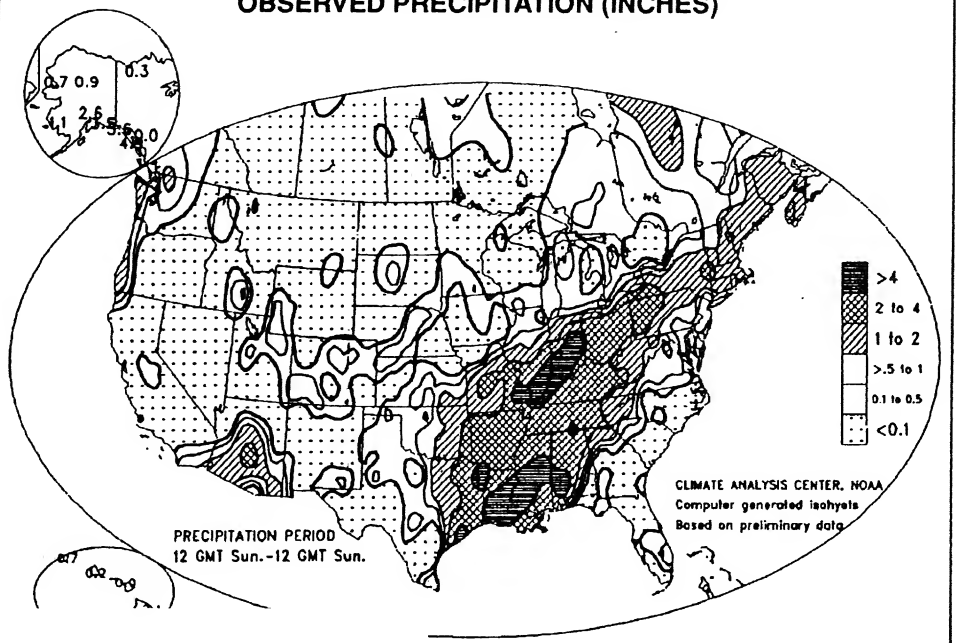
across the Ohio Valley, Southeast, Appalachians, and mid–Atlantic. Unseasonably warm air remained over the middle and southern Atlantic Coast states, and several more daily record highs were recorded. During the latter part of the week, the eastern frontal system swept out into the Atlantic Ocean. Another low pressure system, however, developed along the system off the middle Atlantic Coast, bringing more rain to the mid–Atlantic and Northeast on Friday. Meanwhile, the western cold front sped southeastward across the nation, spreading scattered precipitation over the northern and central Rockies on Thursday, generating high wind gusts from the Great Plains to the Mississippi and Ohio Valleys and Great Lakes on Friday, and sweeping into the Atlantic Ocean on Saturday. As the week ended, gusty northerly winds ushered much colder Canadian air into the East and generated locally heavy lake–effect snow along the lee of the Great Lakes, while cold arctic air plunged southward into Pacific Northwest, northern Rockies, and northern Plains. In Alaska, a winter storm buffeted the Kenai Peninsula, Susitna Valley, Prince William Sound, and Copper River Basin on Thursday. A second storm brought blizzard conditions to the Seward Peninsula, lower Kobuk Valley, and western Arctic slopes on Saturday.

According to the River Forecast Centers, the greatest weekly precipitation totals (between two and nine inches) fell from eastern Texas and the central Gulf Coast northeastward to the lower Great Lakes. In addition, scattered totals exceeding two inches were reported across central Arizona, the Northeast, northwestern Washington, the Big Island of Hawaii, and southeastern Alaska. Light to moderate amounts were measured in the Rockies, the central Plains, central Alaska, and much of the remainders of the Pacific Northwest, southern Plains, southern Alaska, and the eastern half of the nation. Little or no precipitation was reported in California, the Great Basin, the northern Plains, portions of the southern Atlantic Coast, northern Alaska, and the remainder of Hawaii.

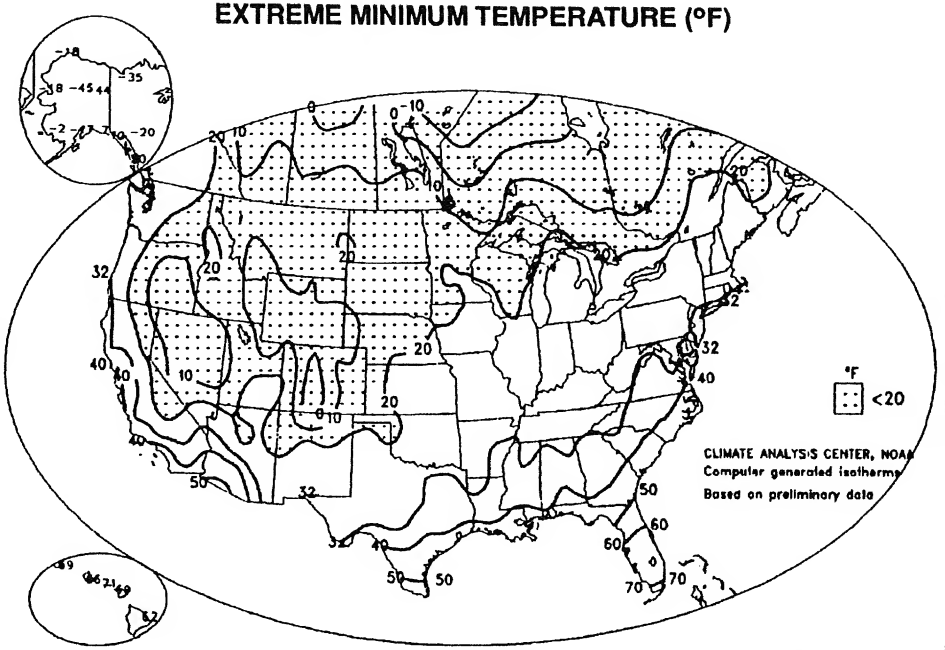
Warmer than normal conditions prevailed from the central and eastern Gulf Coast northeastward to the lower Great Lakes and New England, from the northern Rockies eastward to the upper Great Lakes, and over portions of the lower Rio Grande Valley and the immediate southern Pacific Coast. Weekly departures of +6°F to +13°F were observed across the Southeast, mid–Atlantic, central Appalachians, and portions of the northern Plains. Abnormally warm weather also dominated the southern half of Alaska, with weekly departures reaching +9°F at Northway. Temperatures averaged near to above normal in Hawaii.

Below normal readings covered the remainder of the country, with weekly departures ranging from –4°F to –13°F over much of the Great Basin, the central and southern Rockies, and the southern Plains. Abnormally cold conditions also prevailed across northern Alaska, with temperatures averaging 10°F below normal and lows dipping to –43°F at Bettles.

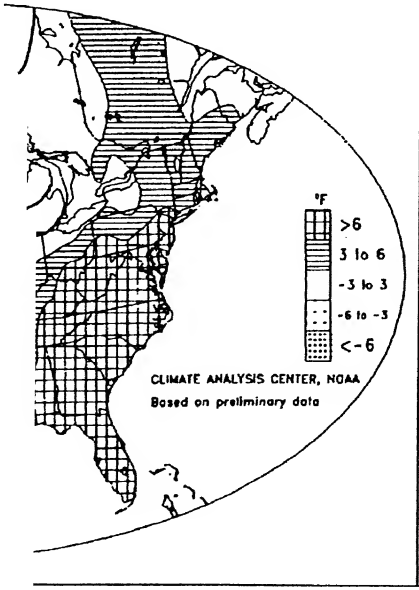
OBSERVED PRECIPITATION (INCHES)



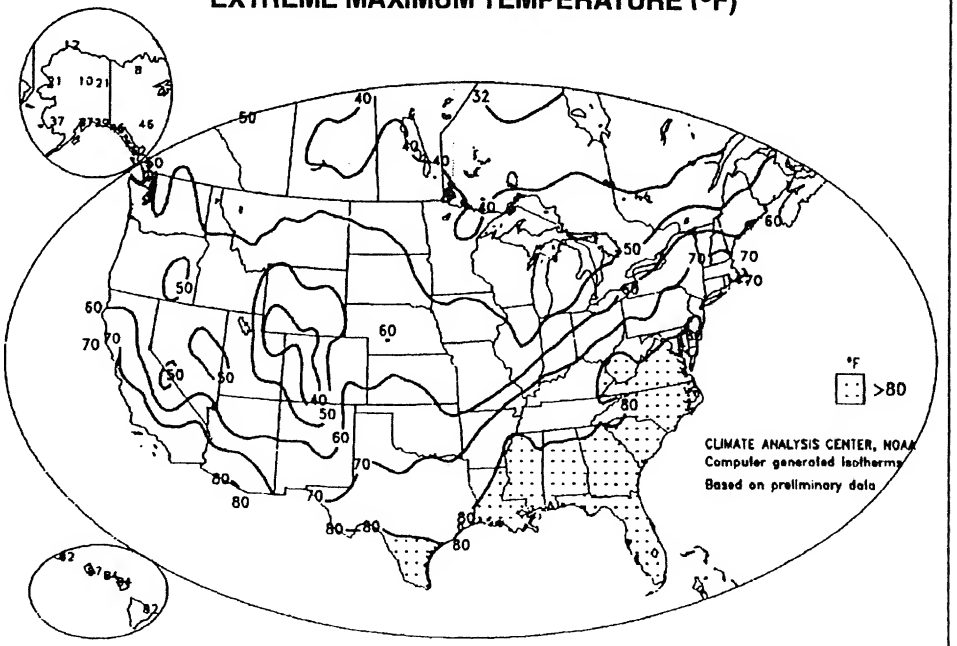
EXTREME MINIMUM TEMPERATURE (°F)



E TEMPERATURE
\L (°F)

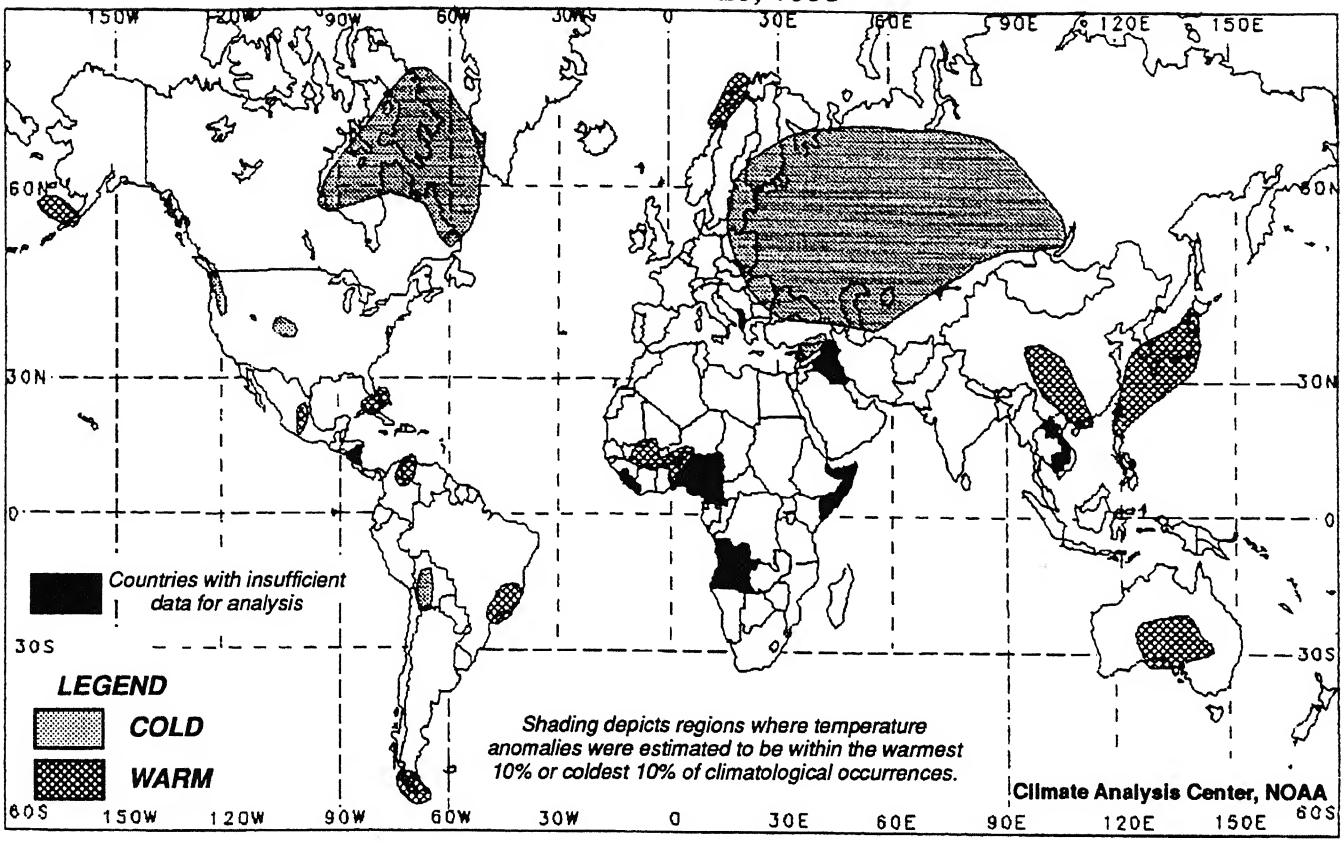


EXTREME MAXIMUM TEMPERATURE (°F)



TWO–WEEK GLOBAL TEMPERATURE ANOMALIES

NOVEMBER 7 – 20, 1993



FOUR–WEEK GLOBAL PRECIPITATION ANOMALIES

OCTOBER 24 – NOVEMBER 20, 1993